Serial No. 09/854,897

Title: CD TRANSPORTER WITH RE-TRANSFER PRINTER

AMENDMENTS TO THE SPECIFICATION

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[0004] To identifying the data stored on a compact disc, a label is often printed on one side of the compact disc. For large manufacturing runs of a common compact disc, a silkscreen process is often used to apply the label to the compact disc. For small production runs of compact discs, such as those using recordable compact discs, a silkscreen operation may not be economical. A custom printing operation, therefore, can be employed to print a custom label on each compact disc. See for example U.S. Patent No. 5,734,629 entitled "CD Transporter" issued March 31, 1998 for a description of a compact disc transporter that can be used to move a compact disc between a data recorder and a printer.

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[0033] A printer 140 is positioned proximate the upper end of support frame 114. Printer 140 has an opening 142 positioned adjacent the path of travel of carriage 128. A printer drawer may be opened outwardly from opening 140 142, and may be pulled inwardly into printer 140. The drawer has a circular seat sized to receive a CD, which may be deposited therein by selective movement of carriage 128 and gripper 132.

[0034] It may be desired that the printer only print indicia on selected areas of the CD surface. As such, the gripped CD is rotated and aligned using the sensor for proper insertion into the printer 140. See U.S. Patent No. 6,041,703 issued March 28, 2000 "Compact disc printing system and method" describing one method of orienting a CD for printing. For purposes of conciseness, indicia is used herein to describe any material provided or printed on a surface of a compact disc and is not limited to textual information, identification, graphics or identifying marks.

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[0039] The transporter embodiments described above include a re-transfer printer 160 1. The printer uses an intermediate ribbon, or sheet, that receives image, or indicia, that is to be printed on the processed compact discs. The printer improves image quality and processing time, as explained below. The improved printer allows reproduction of original compact disc art. Thus, an impediment to "content on demand" systems can be eliminated with the present invention. That is, a business method of recording content (music, video, software) on demand at remote locations has not found broad acceptance

RESPONSE TO NON-FINAL FFICE ACTION

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because accurate, fast reproduction of original disc artwork has not been available. The present invention solves this problem.

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[0046] The retransfer printer 160 1 is described in detail in Japan patent applications "THERMAL TRANSFER PRINTER", "Method of forming primary transfer image in intermediate transfer system and intermediate transfer printer" and "THERMAL TRANSFER LINE PRINTER" filed May 14, 2001 by Alps Electric Co., LTD, and are incorporated herein by reference. Figures 7 to 12 show an embodiment of the thermal transfer line printer 160 1 in accordance with the present invention. By way of example, the thermal transfer line printer of this embodiment performs printing of full-color image by using a multi-color ink sheet on which color ink regions of five colors of W, K, Y, M and C are arranged such that these regions of different colors appear periodically and repeatedly along the length of the ink sheet, with a color discrimination mark provided at each of the boundary portions of the adjacent ink regions. The K region is used in one embodiment to print indexing marks, and not to print to the primary image.

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[0055] The path of movement of the intermediate transfer sheet 7 is determined such that it overlaps the multi-color ink sheet 6 in the region where the sheet 7 contacts the platen roller $6 \underline{2}$. In this region, the intermediate transfer sheet 7 faces the ink regions on the multi-color ink sheet 6.